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Enhancing the Adoption of Digital Banking in Rural Communities in Zimbabwe

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Abstract: Objectives: The study aims to determine the level of adoption of digital banking services in rural areas in Zimbabwe and develop a framework to encourage the adoption of digital banking services. **Prior work:** Despite efforts by banks and governments to improve the adoption of digital banking services, customer adoption remains low. **Approach**: The research was conducted in five villages in the Mashonaland East Province using 380 smallholder farmers. Data were analysed and quantitatively collected using correlational methods, inferential statistics, descriptive statistics, and hypothesis tests. **Results**: Research findings confirm low awareness and adoption of digital banking services in rural areas. Adoption of digital banking by rural smallholder farmers is influenced by the ease of use, trust, internet connectivity, cost, and incentives provided to encourage adoption. **Implications:** The study recommends a framework that enhances the adoption of digital financial services. There is a need to improve internet connectivity, increase awareness and education, reduce transaction costs and provide tailor-made services to suit rural communities. **Value:** The study uses a unique study population, rural smallholder farmers, identified as a relevant population cohort for the achievement of financial inclusivity in Zimbabwe. Results address SDG of poverty alleviation, and address Zimbabwe's NDS 1 and Vision 2030.

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1. Introduction

The sluggish adoption of digital banking by rural communities has been a cause for concern in many countries around the world, especially in developing countries. Despite the efforts being made by banks and governments to improve the uptake and use of digital banking services, their adoption and usage in rural areas remains subdued (NFIS 11, 2022). Since the introduction of digital banking in Zimbabwean banks, its adoption by rural communities and smallholder farmers of Zimbabwe has been low, as evidenced by an increase in long queues in the banking halls in rural growth points, with customers still carrying large sums of cash (Ntini et al., 2022). According to the latest research by FinScope Consumer Survey (2022), only 34% of the rural population uses digital banking financial services to transact. Only 35% of the rural residents have internet and network connections, leading to subdued use of digital financial services. This prompted further investigations to explore reasons for the non-adoption and subdued usage of digital services in rural communities of Zimbabwe and develop a framework to enhance digital banking adoption among rural residents.

Digital banking has played a crucial role in reaching unserved people in remote areas, especially in rural communities, by delivering banking services online over mobile phones without the need to visit physical branches (Mugisha, 2024). The use of digital banking systems offers rural communities accessibility to official financial services 24/7 from anywhere in the world (Myeni et al., 2020 Nguyen et al., 2020). The introduction of digital systems helps customers to have the ability to conduct bank transactions anytime and wherever they are without the need to visit physical branches (Windasari et al., 2022; Lee et al., 2023). Digitisation of banks has changed how individuals perform their financial transactions, moving from branch-based transactions to electronic transactions performed electronically via mobile phones, personal computers, and other electronic devices (Chen & Dastane 2022; Siek & Rukma, 2022).

Regionally, it has been noticed that digital banking has penetrated the market, removing traditional banking services and going digital as evidenced by the small-scale farmers in Kenya who have adopted digital banking services in purchasing inputs for farming, paying costs, and receiving payments for their produce (Parlasca et al., 2022). In South Africa, mobile banking has increased accessibility and convenience to farmers in rural communities, making digital banking important as it brings convenience to everyone (Dlamini,2020). This shows that digital banking

technologies have changed all transactions that used to be found at physical branches and can now be accessed online via mobile devices and Internet banking, making the banking experience easier for rural communities (Nurahmasari et al., 2023).

The banking system and the government of Zimbabwe have also followed other nations by transforming from traditional banking systems to digitised banking systems to make financial services accessible to everyone, especially to those in rural communities where they are branches (NFIS 11, 2022). However, Mhlanga (2020) found that only 27% of smallholder farmers and rural communities participate in digital banking. Infrastructure inadequacy like internet connectivity and electricity in rural areas has caused the digital divide resulting in low usage of digital banking (Swartz et al., 2023). Despite the potential benefits of digital banking, rural communities and smallholder farmers have been identified as lagging behind in the use of such technology (NFIS 11, 2022).

The study sought to develop a digital banking framework to enhance adoption and usage by smallholder farmers and rural communities in Zimbabwe in an endeavor to enhance financial inclusivity. Furthermore, the study sought to establish reasons for non-adoption, assess digital literacy and awareness of rural communities and provide recommendations on what can be done to enhance adoption and usage. The study adds to the body of knowledge by addressing the sustainable development goal on poverty alleviation. Further study results will be in tandem with the targets of the Zimbabwe National Financial Inclusion as they seek to increase financial inclusivity of rural communities and small holder farmers.

2. Literature Review

Digital banking can be defined as a banking technology whereby financial transactions that used to be accessed at physical branches can now be accessed via mobile devices and Internet banking (Nurahmasari et al., 2023). The introduction of digital banking technologies helped rural communities by providing access and convenience to banking services (Talwar et al., 2020; Dlamini, 2020; Hamdan et al., 2022; Zeng et al., 2023). Several researchers have established that digital banking is one of the significant enablers of financial inclusion in many economies, more so among rural communities (Hamdan et al., 2022; Mitręga-Niestrój et al., 2019; Sarkar & Thapa, 2021). A study conducted by Parvin and Panakaje, (2022) established that the benefits of digital banking included credit accessibility, enhanced cash security (Dizon et al., 2020; Sardana & Singhania, 2020; Boufounou et al., 2022) financial empowerment, cost-effectiveness (Mohapatra et al., 2020; Fathima, 2020; Dubey, 2019) as well as promotion of financial inclusion. Digital banking makes it faster and quicker in transaction processing as well as helps in remittance transfers (Lee

& Lee, 2021). Through utilizing mobile banking, people who live far away from branches can receive remittances (Wieser et al., 2019).

Many scientific researchers have used technology adoption models to explore elements that impact the attitude of customers towards new technologies. Adoption models such as the Technology Adoption Model put forward by Davis (1989), as well as Diffusion of Innovation Model Diffusion of Innovation Model (DIM) developed by Rogers and Williams (1983), inform the study. To determine key enablers of new technology among customers, perceived benefits as well as simplicity of use were considered in the development of TAM (Davis, 1989). Keni (2020) defined perceived usefulness as the ability of the new technology to help customers achieve their objectives. The ability of new technologies to improve customers' productivity and security is referred to as perceived benefits (Musyaffi et al., 2022). According to research conducted by Nur and Panggabean (2021), TAM is a more useful theory for predicting people's intentions to accept new technologies. According to Han & Sa (2022), TAM was found to be the most common model used in the acceptance of new technologies. Goh and Wen (2022) considered the TAM as a crucial hypothesis in predicting the global adoption and applicability of new innovations.

Rogers and Williams (1983) developed the Innovation Diffusion of Innovation Model (DIM). The model explains the process of innovation acceptance and adoption among individuals and organizations. Diawati et al. (2023) defined innovation as an invention of something new or an improvement in the existing technology. Shaikh et al. (2023) classified the DIM into five phases that a consumer experiences in making decisions on whether to adopt or not adopt new technology. Researchers can offer important insights into viable ways to establish digital banking services in rural communities by determining the elements that influence the adoption rate and the factors that slow it down (Rogers & Williams, 1983).

However, some academic research studies have identified weaknesses of the DIM theory. The identified factors do not fully address the complications of adoption in specific areas for instance a research study exploring consumer acceptance of Takaful in Pakistan indicated that the theory did not fully handle the acceptance and adoption of innovations in diverse cultural and marketing settings (Ali et al., 2019). The research study conducted by Call and Herber (2022) analyzed the diffusion of the innovation model on its potential for quickening model-based systems on engineering adoption and found its weaknesses in adapting to modern technologies.

Several researches have been conducted to uncover the reasons for the non-adoption of digital banking around the globe and established that lack of infrastructure was a major impediment to the adoption of digital banking (Abu & Toyon, 2023; Mukhlis & Pratama, (2023). Infrastructure facilities impact the attitude of customers towards digital banking uptake (Pavithra, 2021). Bernards (2022) and Naidoo, (2023) in their

research study on factors affecting digital development in rural communities found that poor internet connectivity and electricity shortages are some of the obstacles to digital technology uptake.

Lack of digital financial literacy and awareness was also posited as another reason for the non- adoption of digital banking **(**Tony & Desai, 2020; Bhatt, 2020; Mandal, 2023)**.** Vinayagamoorthy and Ganesan (2020) conducted a research study on consumer's perception towards the use of Internet banking in Salem district rural areas and found that awareness of Internet banking improves adoption in rural areas. Veena and Anitha (2022) in his research on the effect of digital banking adoption in elderly people found that lack of knowledge and awareness among others contribute to the non-adoption of digital banking services.

Reduction of fees on the usage of mobile banking services impacted its uptake (Aker et al., 2020). Assistance in account opening and the waiving of fees increased the adoption of mobile money which shows that transaction fees affect digital banking adoption (Aggarwal et al., 2020). Another research by Iran (2020) found that transaction costs affect digital banking adoption by consumers. Barugahara (2021) found that high financial transaction costs among others influence the use of banking services. Appu et al. (2021) in their research found that additional charges on the use of Internet banking caused non-adoption of Internet banking and suggested that banks should reduce additional charges to increase uptake of Internet banking.

Trust impacted the uptake of digital banking in many countries around the world (Alkhowaiter, 2020; Oyelami et al., 2020). In India, trust was found to be one of the elements impacting digital banking (Kaur et al., 2021). According to Gupta et al. (2023), trust was also found to be a contributing factor in adopting mobile banking in Thailand. Tiwari (2021) also established that trust was found to be a key contributor to mobile banking adoption among customers.

Research findings by Alkhawaldeh et al. (2022) , showed that banks should prioritize perceived utility and ease of use more to promote banking on-the-go services. According to Malaquias and Silva (2020), the uptake of digital banking by Brazilian farmers is affected by how secure and useful it is deemed to be. Banerji and Singh (2022) conducted a research study and discovered that among other factors, perceived utility affects the uptake of banking on-the-go services. Perceived utility is a key contributor to the uptake of mobile banking services (Talwar et al., 2020). In Vietnam, research findings showed that perceived utility positively influenced a decision to adopt digital banking (Nguyen et al., 2020).

A research conducted in Bangladesh, found that language contributed to the adoption of mobile banking and concluded that training is needed to overcome language barrier (Abu & Toyon, 2023). According to one of the researches in India, the findings showed that mobile banking applications were not user-friendly and

researchers found that in order to increase client acceptance, banks should concentrate on offering applications which are user-friendly (Mohapatra et al., 2020). Vuong et al. (2020) emphasized the importance of financial institutions providing user-friendly products that can auto-translate options for different languages to improve digital adoption in customers as some people will not be able to use mobile banking applications due to language barriers. Tay et al. (2022), stressed how it is crucial to simplify complex banking services among others to improve the uptake and usage of digital financial services.

Social demographic characteristics including work status and educational attainment have been found to be some of the contributing factors to the uptake of digital banking technologies among rural farmers and rural residents. Several researchers have established that age plays a key role in influencing the adoption of digital banking with the young being noted to be more aggressive than their older age counterparts (Nurahmasari et al., 2023; Bekmukhambetova & Németh, 2023; Thusi & Maduku, 2020). Level of education was also established as a key variable influencing adoption, with the educated being early adopters and the old age being the late majority (Myeni et al., 2020; Liew et al., 2020). Toyon (2023), emphasized the importance of access to education as a crucial element in the uptake of online banking and concluded that it is important to increase consumer education and awareness to increase the adoption of Internet banking especially those in rural areas. Akinyemi and Mushunje (2020) revealed that the target audience for mobile banking is educated young.

Putri et al. (2024), concluded that financial technology is evolving quickly in the contemporary digital era, thus it is good that people are technologically literate. Low levels of digital financial literacy in Indonesia lead to victims of online loans and data fraud. Mandal (2023) carried out a research study in India rural communities aiming to assess the degree of financial literacy in the digital age from rural India and to find out opportunities as well as challenges they are facing in the use of digital financial systems. The study findings were that it was found that many people in rural areas have digital illiteracy causing non-adoption of digital financial systems. He considered awareness and availability of communication in rural areas as key enablers in the financial systems' adoption that are digital.

According to Liew et al. (2020), farmers in Sarawak's rural areas were somewhat aware of the goods and services provided by digital financial services, but they had no understanding of digital financial risk or how to reduce it. Moreover, they were unaware of the different consumer rights that existed or the channels for redress. They concluded that for the economy to succeed inclusively, more digital financial literacy needs to be fostered among socially underprivileged groups.

In Bangladesh, Hasan et al. (2021), carried out a study to investigate how financial literacy might enhance inclusive financing. According to the survey, one of the major

factors influencing the uptake of financial services is financial literacy. The study looked at how financial literacy affected people's ability to use fintech and banking services. The research also found out that employment status, financial literacy on depositing and withdrawing money, as well as income levels affect access of financial services. The study recommended that governments in developing countries must improve financial inclusion as well as education in rural areas. The current study extends the inquiry to Zimbabwe rural communities to establish explanation to the low adoption of digital banking services and recommend a framework that can be used to enhance adoption and usage.

3. Methodology

The research study adopted a social constructivist epistemological perspective in its attempt to understand and analyse the subjective experiences, and beliefs of rural communities and smallholder farmers through quantitative techniques. The axiology of this study emphasizes the promotion of social welfare and ethical issues. It emphasizes social justice, inclusive development, and underprivileged populations' empowerment. the study adopted a quantitative method approach in which relationships between variables are being tested as well as gaining in-depth analysis of the factors influencing adoption. The research study was conducted in five communities in the rural district in Mashonaland East Province. The sample size was found to be 400 calculated using the Taro Yamane formula. A survey questionnaire was utilized as a research tool to gather primary data from the rural population and smallholder farmers. Data was collected using door-to-door distribution of questionnaires to people with the assistance of the Field Workers in the area. A pilot test was conducted before field data collection so as to ensure reliability and questionnaire validity. For this research, Cronbach alpha was used to test reliability and the data was proved to be reliable as it was above 0.7.

4. Results and Discussion

Of the 380 targeted respondents only 300 participated in the study, giving a response rate of 78.9% which was appropriate for analysis as supported by Story & Tait, (2019) who stated that a 60% response rate and above is good for analysis and for making reliable inferences.

4.1. Reliability and Validity Test

Reliability of the data was tested using Cronbach's Alpha to assess the quality and dependability of data. Results are presented in table 1 below.

Table 1. Cronbach Alpha

Cronbach's Alpha	N of Items
.746	31

Source: Processed data by SPSS

According to Robertson & Evans (2020) the acceptable range should be between 0.7 to 0.95 hence for the current study an alpha of 0.746 was deemed adequate hence data was reliable. Table 2: The demographic variables of the respondents who participated in the study.

4.2. Demographic Variables of the Respondents

Table 2. The demographic variables of the respondents

Gender	Male	42%
	Female	58%
Age	18-25	18%
	26-35	23%
	36-50	40%
	50+	18%
Education	Degree	7%
	Secondary	85%
	Primary	8%
Employment status	Self employed	26%
	Part time	14%
	Full time	33%
	Unemployed	32

Source: Processed data by SPSS

As shown in table 2 above, 58% of the respondents were female whilst 42% were male and 40 % of the respondents were between the ages of 36-50, 18% were above 50 years, and lastly 26-35 constituted 24%. Table 2 above demonstrates that 85% of employees attended secondary schools, 7% have a degree and 8% had primary education only. This shows that most of the respondents have attended secondary education and thus were capable of reading and writing making the results obtained credible and valid. The employment status of participants showed that 26% are self-employed, 32% unemployed 14% are employed on a parttime basis whist 28% are in full-time employment.

4.3. Awareness and Usage of Digital Banking Services

Data was collected to establish the level of usage of digital banking services by small holder farmers. Results are presented in Table 3 below.

Table 3. Adoption and usage rate of digital banking

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev
Do you use any Digital banking services (mobile banking or online banking)	300	2	3	2.08	.267
Do you have an active bank account	300	2	3	2.25	.436
How often do you use digital banking services	300	1	4	2.52	.778
How many times do you use your bank account per month	300	1	4	1.86	1.016
Valid N (listwise)	300				

Source: Processed data by SPSS

Respondents were asked whether they used any digital banking if they had an active bank account, and how often they used banking services. Responses showed that a notable number used digital banking and have an active bank account. A mean of 2.08, 2.25, 2.52, and 1.86 confirm low adoption and usage as noted in the Finscope Survey (2022) and NFIS 11 (2022), hence the need for further investigation on the causes of low adoption. Table 4 shows the results on awareness of digital banking in the rural communities.

Table 4. Awareness of digital banking in the rural communities

	N	Min	Max	Mean	Std.Dev
I am aware of Digital Banking	300	1	4	1.83	1.317
I can carry all my banking transactions digitally	300	1	4	2.10	1.392
Valid N (listwise)	300				

Source: Processed data by SPSS

The above table shows two questions that have a mean of 1.83 and 2.10 respectively and a standard deviation of 1.317 and 1.392 respectively. Findings revealed that most of the respondents are not aware of digital banking services and most of them do not know that they can do their transactions digitally. This is in support of the research by Shaikh et al., (2023), who revealed that consumers' non-adoption of digital banking was largely due to unawareness. Again Veena and Anita (2022) researched on the effect of digital banking adoption among elderly people and found out that lack of knowledge and awareness among key factors influencing non-adoption of digital banking.

4.4. The Benefits of Using Digital Banking Platforms

The study sought to establish whether respondents were aware of the benefits of using digital banking platforms. Research results are presented in Table 5 below:

Table 5. Relative advantage of digital banking services

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev
Digital banking allows me to transact anytime and anywhere	300	1	5	4.20	.968
Digital banking saves time of going to the bank	300	1	5	4.05	1.062
Digital banking is convenient	300	1	5	3.71	1.292
Digital banking reduces the risk of theft	300			4.47	.897
Valid N (listwise)	300				

Source: Processed data by SPSS

The table above presents findings on the benefits of using digital banking and responses have a range mean of between 4.05 and 4.20 which suggests that participants acknowledge the advantages of using digital banking over the traditional banking method hence the need for developing a digital banking framework to enhance adoption.

4.5. Factors Influencing the Adoption of Digital Banking Services

One of the objectives of the study was to identify factors influencing the adopting and usage of digital banking services. Respondents were asked to state whether it was easy to use digital banking platforms and whether that required mental effort, training and education and their responses are shown in Tables 6 below.

Table 6. Ease of usage of digital banking in rural communities

Descriptive Statistics					
	N	Min	Max	Mean	Std. Dev
It is not easy to use	300	3	5	4.12	.710
It requires a lot of mental effort to use it	300	1	5	4.29	.975
Digital banking requires training and education	300	2	5	4.46	.807

Valid N (listwise)	300				

Source: Processed data by SPSS

The above table with means of 4.12, 4.29 and 4.46 respectively and standard deviations of 0.710,0.975 and 0.807 shows that participants agreed that digital banking is not easy to use and that digital banking requires mental effort as well as training and education.

4.5.1. Trust

Data was also captured to measure the level of trust that respondents had in digital banking. Findings are presented in table 7 below:

Table 7. Trust

	N	Min	Max	Mean	Std. Dev
I am concerned that people can access my account through digital banking	300	1	5	4.34	1.014
Digital banking is safe to use	300	1	5	3.64	1.123
I don't trust Digital Banking	300	1	5	4.14	1.065
Valid N (listwise)	300				

Source: Processed data by SPSS

The mean score ranging from 3.64 to 4.34 and standard deviation ranging from 1.014 to 1.123 showed that participants do not trust the digital banking platforms and are concerned that some unauthorised persons can gain access to their accounts. Respondents indicated that digital banking platforms were not safe to use. These research findings conform to those by Dilaksha, (2022) who conducted a research study in Sri Lanka, and the research findings pointed out that rural people are very sensitive to perceived trust in banking services. Again, according to the research study by Tiwari (2021), trust was found to be a key contributor to mobile banking adoption among customers.

4.5.2. Affordability

Data was also captured to consider people's perceptions of the affordability of digital banking services. Findings are presented in Table 8 below.

Table 8. Shows customers' views on the costs of digital banking services

	N	Min	Max	Mean	Std. Dev
Digital banking is affordable to use	300	1	5	4.05	1.107

Digital banking allows me to save money than going to the traditional bank	300	1	5	3.71	1.407
Digital banking requires data which is expensive	300	1	5	4.24	1.139
Valid N (listwise)	300				

Source: Processed data by SPSS

Responses had a mean of 4.05, 3.71 and 4.24 which shows that a greater proportion of the respondents agreed that digital banking is cost-efficient. However, a majority were of the opinion that digital banking platforms require data bundles for internet connectivity that are expensive (mean 4.24). The results are consistent with research findings by Mohapatra et al., (2020) who established that digital technology eliminates the need for in-person transaction thereby significantly lowering costs. Fathima (2020) also found out that availability of all branch services online eliminates the need to visit branches for transaction, which contributes significantly to cost savings.

4.6. Incentives Offered to Enhance Adoption

Data was gathered to establish the efforts that had been put by the government to enhance adoption of digital banking by rural communities. Results are presented in table 9 below.

Table 9. Incentives provided to encourage adoption of digital banking

	N	Min	Max	Mean	Std. Dev
We received Digital banking awareness programs	300	1	4	1.81	1.136
We received Digital financial literacy programs	300	1	4	1.93	1.157
We received programs encouraging use digital banking services	300	1	4	1.67	1.101

Source: Processed data by SPSS

The research gathered information on any initiatives that had been done by the government to raise awareness and encourage usage. The mean responses were 1.81, 1.93, and 1.67 showing that awareness programs and financial literacy programs were minimal. Results also showed that these programs were not effective as there was no change in the level of awareness or usage. The findings support Dilaksha (2022) who in his research on mobile banking adoption concluded that education and awareness campaigns should be carried out so as to improve the adoption and usage

of banking services. According to the findings by Paulmoni (2022), banks should educate rural people about modern banking technologies so as to improve uptake and usage of them. Barugahara (2021) concluded that the government should develop a consumer regulatory framework to improve financial literacy among others.

4.7. Hypothesis Tests

Hypothesis tests were conducted to inform the framework that can be developed to enhance the adoption and usage of digital banking platforms. Firstly, the research hypothesised that ease of use improves digital banking adoption. The results are presented below:

Table 10. Test statistics for perceived ease of use

N	300
Kendall's W[a]	.793
Chi-Square	475.590
Df	2
Asymp. Sig.	.000

Source: Processed data by SPSS

4.7.1. Perceived Ease of Use Improves Digital Banking Adoption

The above table shows Kendall's coefficient of 0.793 showing that usage and uptake of digital banking are closely correlated with perceived usefulness. This can be caused by offering convenience and transacting anytime anywhere. Thus, the hypothesis was accepted.

4.7.2. Government Incentives

The second hypothesis was that Government incentives increase digital banking adoption. Results are presented in Table 11.

Table 11. Shows test results for incentives provided to encourage the adoption of digital banking

N	300
Kendall's W[a]	.671
Chi-Square	603.628
Df	3
Asymp. Sig.	.000

Source: Processed data by SPSS

The table above shows a Kendall's coefficient of 0.67 showing that the adoption and use of digital banking are closely correlated with government incentives.

Government incentives such as training, awareness campaigns, and policies can enhance the adoption and usage of digital banking. The hypothesis was therefore accepted.

4.7.3. Awareness

Thirdly, the study hypothesised that awareness improves digital banking usage. The results are presented in the table 12 below.

Table 12. Test results for awareness

N	300
Kendall's W[a]	.918
Chi-Square	550.751
Df	2
Asymp. Sig.	.000

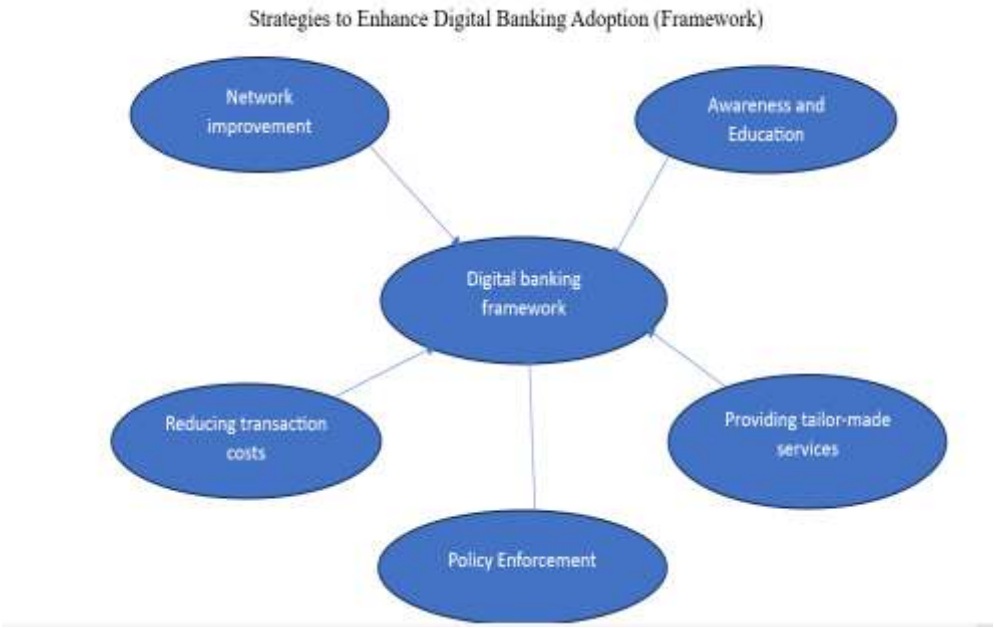
Source: Processed data by SPSS

The above table indicates a strong correlation between awareness and uptake of digital banking as shown with a 0.9 Kendall's coefficient. The adoption and usage rates of digital banking are likely to rise if people are aware of them. Thus the hypothesis was accepted.

5. Conclusion

The study concluded that the adoption and usage of digital banking services by rural communities were low. This was mainly attributed to a lack of awareness, cost implications, lack of trust, lack of connectivity, and lack of knowledge which required training and possibly education. The study proposes the following framework to enhance adoption.

5.1. Recommended Digital Banking Adoption Framework



5.2. Limitations

The study was conducted in one rural community in one province. Data was collected over a short period thus the sample size may have been smaller.

5.3. Suggestions

In order to enhance the rural population's acceptance of digital banking, the study recommends banks, government, and other stakeholders carry out awareness campaigns as well as training services to equip these people with the knowledge and an appreciation of digital banking and its benefits so that they can adopt it. Banking transaction costs and bank charges play an important part in boosting digital banking uptake among rural communities. Researches enlightened that many rural people are concerned about bank charges and transaction costs, so there is a need to reduce transaction costs as well as bank charges.

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